

**Eureka Trail**

**Tree Identification Key**

**March 2020**

**Information from National Audubon Society**

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## 1. Black Cherry (*Prunus serotina*)

Description: Aromatic tree with tall trunk, oblong crown, abundant small white flowers, and small black cherries; crushed foliage and bark have distinctive *cherrylike odor* and *bitter taste*.

- Height: 80' (24 m).
- Diameter: 2' (0.6 m).
- Leaves: 2 – 5" (5 – 13 cm) long, 1 ¼ - 2" (3 – 5 cm) wide. *Elliptical*; 1 – 2 *dark red glands* at base; *finely-toothed with curved or blunt teeth*; slightly thickened. Shiny dark green above, light green and often hairy along midvein beneath; turning yellow or reddish in autumn.
- Bark: dark gray; smooth, with horizontal lines; becoming irregularly fissured and scaly, exposed reddish brown inner bark; *bitter and aromatic*.
- Twigs: reddish-brown, slender, hairless.
- Flowers: 3/8" (10mm) wide; 5 rounded, white petals; *many flowers along spreading or drooping axis* of 4 – 6" (10 – 15 cm) at end of leafy twig; in late spring.
- Fruit: a *cherry* 3/8" (10 mm) in diameter; skin *dark red turning blackish*; slightly *bitter, juicy, edible* pulp; elliptical stone; maturing in late summer.

Habitat: On many sites except very wet or very dry soils; sometimes in pure stands.

Range: S Quebec to Nova Scotia, south to central Florida, west to E. Texas, and north to Minnesota; varieties from central Texas west to Arizona and south to Mexico; to 5000' (1524 m) in south Appalachians and at 4500 – 7500' (1372 – 2286 m) in the Southwest.

This widespread species is the largest and most important native cherry. The valuable wood is used particularly for furniture, paneling, professional and scientific instruments, handles, and toys. Wild cherry syrup, a cough medicine, is obtained from the bark, and jelly and wine are prepared from the fruit. One of the first New World trees introduced into English gardens, it was recorded as early as 1629. As many as 5 geographical varieties have been distinguished.



## 2. Red Mulberry (*Morus rubra*)

Description: Medium-sized tree with short trunk, broad rounded crown, and milky sap.

- Height: 60' (18 m).
- Diameter: 2' (0.6 m).
- Leaves: in 2 rows; 4 – 7" (10 – 18 cm) long, 2 ½ - 5" (6 – 13 cm) wide. Ovate; abruptly long-pointed; with 3 main veins from often unequal base, coarsely saw-toothed; often with 2 or 2 lobes on young twigs. Dull dark green and rough above, with soft hairs beneath; turning yellow in autumn.
- Bark: brown; fissured into scaly plates.
- Twigs: brown, slender.
- Flowers: tiny, about 1/8" (3 mm) long; crowned in narrow clusters; male and female on same or separate trees; in spring when leaves appear.
- Fruit: 1 – 1 ¼" (2.5 – 3 cm) long; a cylindrical mulberry; red or dark purple; composed of many tiny beadlike 1-seeded fruits, sweet and juicy, edible; in late spring.

Habitat: Moist soils in hardwood forests.

Range: S. Ontario east to Massachusetts, south to S. Florida, west to central Texas and north to SE. Minnesota; to 2000' (610 m).

The wood is used locally for fenceposts, furniture, interior finish, and agricultural implementations. People, domestic animals, and wildlife (especially songbirds) eat the berries. Choctaw Indians wove cloaks from the fibrous inner bark of young mulberry shoots.





### 3. American Elm (*Ulmus americana*)

Description: Large, handsome, graceful tree, often with enlarged buttresses at base, usually forked into *many spreading branches, drooping at ends*, forming a very broad, rounded, flat-topped or vase-like crown, often wider than high.

- Height: 100' (30 m).
- Diameter: 4' (1.2 m), sometimes much larger.
- Leaves: in 2 rows; 3 – 6" (7.5 – 15 cm) long, 1 – 3" (2.5 – 7.5 cm) wide. Elliptical, abruptly long-pointed, base rounded with sides unequal; doubly saw-toothed; with many straight parallel side veins; thin. *Dark green and usually hairless* or slightly rough above, paler and usually with soft hairs beneath; turning bright yellow in autumn.
- Bark: light gray; deeply furrowed into broad, forking, scaly ridges.
- Twigs: brownish, slender, hairless.
- Flowers: 1/8" (3 mm) wide; greenish; clustered along twigs in early spring.
- Fruit: 3/8 – 1/2" (10 – 12 mm) long; *elliptical flat* 1-seeded keys (samaras), with *wing hairy on edges*, deeply notched with points curved inward; long-stalked; maturing in early spring.

Habitat: Moist soils, especially valleys and flood plains; in mixed hardwood forests.

Range: SE. Saskatchewan east to Cape Breton Island, south to central Florida, and west to central Texas, to 2500' (762 m).

This well-known, once abundant species, familiar on lawns and city streets, has been ravaged by the Dutch Elm disease, caused by a fungus introduced accidentally about 1930 and spread by European and native elm bark beetles. The wood is used for containers, furniture, and paneling.



## 4. Flowering Dogwood (*Cornus florida*)

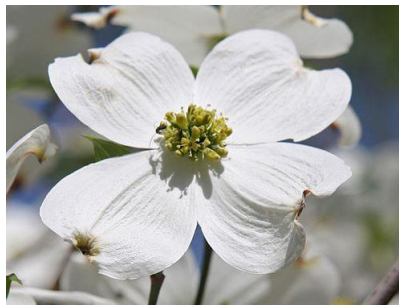
Description: A lovely, small, flowering tree with a short trunk and crown of spreading or nearly horizontal branches.

- Height: 30' (9 m).
- Diameter: 8" (20 cm).
- Leaves: opposite; 2 ½ - 5" (6 – 13 cm) long, 1 ½ - 2 ½" (4 – 6 cm) wide. *Elliptical*; edges slightly wavy, appearing not toothed but with tiny teeth visible under a lens; 6 – 7 *long curved veins* on each side of midvein; short-stalked. Green and nearly hairless above, paler and covered with fine hairs beneath; turning bright red above in autumn.
- Bark: dark reddish-brown; rough, broken into *small square plates*.
- Twigs: green or reddish, slender, becoming hairless.
- Flowers: 3/16" (5 mm) wide; with 4 yellowish-green petals; many of these tiny flowers tightly crowded in a *head* ¾" (19 mm) wide, bordered by 4 large broadly elliptical *white petal-like bracts* (pink in some cultivated varieties) 1 ½ - 2" (4 – 5 cm) long; in early spring before leaves. The flower heads (with bracts) 3 – 4" (7.5 – 10 cm) across are commonly called flowers.
- Fruit: 3/8 - 5/8" (10 – 15 cm) long; berrylike, *elliptical*, shiny *red*; several at end of long stalk; thin mealy bitter pulp; stone containing 1 – 2 seeds; maturing in autumn.

Habitat: Both moist and dry soil of valleys and uplands in understory of hardwood forests; also, in old fields and along roadsides.

Range: S. Ontario east to SW. Maine, south to N. Florida, west to central Texas, and north to central Michigan; to 4000' (1219 m), almost 5000' (1524 m) in southern Appalachians.

Flowering Dogwood is one of the most beautiful eastern North American trees with showy early spring flowers, red fruit, and scarlet autumn foliage. The hard wood is extremely shock-resistant and useful for making weaving-shuttles. It is also made into spools, small pulleys, mallet heads, and jeweler's blocks. Indians used the aromatic bark and roots as a remedy for malaria and extracted a red dye from the roots.



## 5. Loblolly Pine (*Pinus taeda*)

Description: The principle commercial southern pine, a large, resinous, and fragrant tree with rounded crown of spreading branches.

- Height: 80 – 100' (24 – 30 m).
- Diameter: 2 – 3' (0.6 – 0.9 m).
- Needles: *evergreen*; 5 – 9" (13 – 23 cm) long. *3 needles in bundle*; stout, stiff, often twisted; green.
- Bark: blackish-gray; thick, deeply furrowed into scaly ridges exposing brown inner layers.
- Cones: 3 – 5" (7.5 – 13 cm) long; *conical*; *dull brown*; almost stalkless; opening at maturity but remaining attached; cone-scales raised, keeled, with short *stout spine*.

Habitat: From deep, poorly drained flood plains to well-drained slopes of rolling, hilly uplands. Forms pure stands, often on abandoned farmland.

Range: S. New Jersey south to central Florida, west to E. Texas, north to extreme SE. Oklahoma; to 1500 – 2000' (457 – 610 m).

Loblolly Pine is native in 15 southeastern states. Among the fastest growing southern pines, it is extensively cultivated in forest plantations for pulpwood and lumber. One of the meanings of the word *loblolly* is “mud puddle,” where these pines often grow. It is also called “Bull Pine,” from the giant size, and “Rosemary Pine,” from the fragrant resinous foliage.





## 6. Osage-orange (*Maclura pomifera*)

Description: Medium-sized, spiny tree with short, often crooked trunk, broad rounded or irregular crown of spreading branches, single *straight stout spines* at base of some leaves, and *milky sap*.

- Height: 50' (15 m).
- Diameter: 2' (0.6 m).
- Leaves: 2 ½ - 5" (6 – 13 cm) long, 1 ½ - 3" wide. Narrowly *ovate*, long-pointed; *not toothed*; hairless. Shiny dark green above, paler beneath; turning yellow in autumn.
- Bark: gray or brown; thick, deeply furrowed into narrow forking ridges; *inner bark of roots orange*, separating into thin papery scales.
- Twigs: brown, stout, with single pine ¼ - 1" (0.6 – 2.5 cm) long at some nodes and short twigs or spurs.
- Flowers: tiny; greenish; crowded in rounded clusters less than 1" (2.5 cm) in diameter; male and female on separate trees in early spring.
- Fruit: 3 ½ - 5" (9 – 13 cm) in diameter; a *heavy yellow-green ball*, hard and fleshy, containing many light brown nutlets; maturing in autumn and soon falling.

Habitat: Moist soils of river valleys.

Range: The native range uncertain. SW. Arkansas to E. Oklahoma and Texas; widely planted and naturalized in eastern and northwestern states.

Rows of these spiny plants served as fences in the grassland plains before the introduction of barbed wire. The name "Bodark" is from the French *bois d'arc*, meaning "bow wood," referring to the Indians' use of the wood for archery bows. It is also used for fenceposts. Early settlers extracted a yellow dye for cloth from the root bark. The fruit is eaten by livestock, which has given rise to yet another common name, "Horse-apple."





## 7. Smooth Sumac (*Rhus glabra*)

Description: The most common sumac; a large shrub or sometimes a small tree with open, flattened crown of a few stout, spreading branches and with whitish sap.

- Height: 20' (6 m).
- Diameter: 4" (10 cm).
- Leaves: pinnately compound; 12" (30 cm) long; with slender axis. *11 – 31 leaflets* 2 – 4" (5 – 10 cm) long; *lance-shaped*; saw-toothed; *hairless*; almost stalkless. Shiny green above, *whitish beneath*; turning reddish in autumn.
- Bark: brown; smooth or becoming scaly.
- Twigs: gray, with whitish bloom; few, very stout, *hairless*.
- Flowers: less than  $\frac{1}{8}$ " (3 mm) wide; with 5 whitish petals; crowded in large upright clusters to 8" (20 cm) long, with *hairless branches*; male and female usually on separate plants; in early summer.
- Fruit: more than  $\frac{1}{8}$ " (3 mm) in diameter; rounded, 1-seeded, numerous, crowded in upright clusters, dark red, covered with *short sticky red hairs*; maturing in late summer, remaining attached in winter.

Habitat: Open uplands including edges of forests, grasslands, clearings, roadsides, and waste places, especially in sandy soils.

Range: E. Saskatchewan east to S. Ontario and Maine, south NW. Florida, and west to central Texas; also in mountains from S. British Columbia south to SE. Arizona and in N. Mexico; to 4500' (1372 m) in the East; to 7000' (2134 m) in the West.

The only shrub or tree species native to all 48 contiguous states. One cultivated variety has dissected or bipinnate leaves. Raw young sprouts were eaten by the Indians as salad. The sour fruit, mostly seed, can be chewed to quench thirst or prepared as a drink similar to lemonade. It is also consumed by birds of many kinds and small mammals, mainly in winter. Deer browse the twigs and fruit throughout the year.



## 8. Winged Sumac (*Rhus copallinum*)

Description: Shrub or small tree with a short trunk and open crown of stout, spreading branches.

- Height: 25' (7.6 m).
- Diameter: 6" (15 cm).
- Leaves: pinnately compound; to 12" (20 cm) long; with *flat broad-winged axis*. 7 – 17 *leaflets* (27 in southeastern variety) 1 – 3 ¼" (2.5 – 8 cm) long; lance-shaped; usually without teeth; slightly thickened. *Shiny dark green* and nearly hairless above, *paler* and covered with *fine hairs* beneath; turning dark reddish-purple in autumn; stalkless.
- Bark: light brown or gray; scaly.
- Twigs: brown, stout, slight zigzag, covered with fine hairs; with watery sap.
- Flowers: 1/8" (3 mm) wide; with 5 greenish-white petals; crowded in spreading clusters in 3" (13 cm) wide, with *hairy branches*; male and female usually on separate plants; in late summer.
- Fruit: more than 1/8" (3 mm) in diameter; 1-seeded; crowded in clusters; rounded and slightly flattened, dark red, *covered with short sticky red hairs*; maturing in autumn, remaining attached in winter.

Habitat: Open uplands, valleys, edges of forests, grasslands, roadsides, and waste places.

Range: S. Ontario east to SW. Maine, south to Florida, west to central Texas, and north to Wisconsin; to 4500' (1372 m) in the Southeast.

Winged Sumac is sometimes planted as an ornamental for its shiny leaves and showy fruit. The sour fruit can be nibbled or made into a drink like lemonade. Wildlife eat the fruit, and deer also browse the twigs. It is easily distinguishable from other sumacs by the winged leaf axis and watery sap. Often form thickets.



## 9. Royal Paulownia (*Paulownia tomentosa*)

Description: Naturalized tree with short trunk, broad, open crown of stout, spreading branches *very large leaves*, and *showy purple flowers*.

- Height: 50' (15 m).
- Diameter: 2' (0.6 m)
- Leaves: *opposite*; 6 – 16" (15 – 41 cm) long, 4 – 8" (10 – 20 cm) wide. *Broadly ovate*; long-pointed at tip; with *several veins from notched base*; sometimes slightly 3-toothed or 3-lobed. Dull light green and slightly hairy above, paler and densely covered with hairs beneath. Leafstalks 4 – 8" (10 – 20 cm) long.
- Bark: gray-brown; with network of irregular shallow fissures.
- Twigs: light brown, stout; densely covered with soft hairs when young.
- Flowers: 2" (5 cm) long; with *bell-shaped* pale violet corolla ending in 5 rounded *unequal lobes*; fragrant; in upright clusters, 6 – 12" (15 – 30 cm) long, on stout hairy branches; in early spring from rounded brown hairy buds formed previous summer.
- Fruit: 1 – 1 ½" (2.5 – 4 cm) long; *egg-shaped capsule*, pointed, brown, thick-walled seeds; maturing in autumn and remaining attached.

Habitat: Waste places, roadsides, and open areas.

Range: Native to China. Cultivated and naturalized from S. New York south to N. Florida, west to S. Texas, and north to Missouri.

This handsome, rapid-growing ornamental and shade tree resembles catalpas. Vigorous shoots, with enormous leaves 2' (0.6 m) or more in length and width, can be produced by pruning back almost to the base. The soft, lightweight, whitish wood of this weed tree is exported to Japan for furniture and special uses, such as for sandals. Named for Anna Paulowna (1795 – 1865), of Russia, princess of the Netherlands and ancestor of the queen, Juliana.





## 10. American Hornbeam (*Carpinus caroliniana*)

Description: Small, shrubby tree with one or more short *trunk angled* or fluted, long, slender, spreading branches, and broad, rounded crown.

- Height: 30' (9 m).
- Diameter: 1' (0.3 m).
- Leaves: 2 – 4 ½" (5 – 11 cm) long, 1 – 2 ½" (2.5 -6 cm) wide. *Elliptical*, long-pointed at tip; sharply *doubly saw-toothed*; with many nearly straight parallel side veins. *Dull dark blue-green* above, paler with hairs on veins and vein angles below; turning orange to red in autumn.
- Bark: *blue-gray*; thin, smooth.
- Twigs: brown, slender, slight zigzag.
- Flowers: tiny; in early spring before leaves. Males greenish in drooping catkins 1 ¼ - 1 ½" (3 – 4 cm) long. Female reddish-green, paired in narrow catkins ½ - ¼" (12 – 19 mm) long.
- Fruit: ¼" (6 mm) long; paired, *egg-shaped*, hairy greenish *nutlets*, with leaflike *3-pointed*, toothed, *greenish scale*; in clusters 2 – 4" (5 – 10 cm) long, hanging on slender stalks; maturing in late summer.

Habitat: Moist rich soils, mainly along streams and in ravines; in understory of hardwood forests.

Range: SE. Ontario east to SW. Quebec and central Maine, south to central Florida, west to E. Texas, and north to Minnesota; to 3000' (914 m). Also in Mexico.

The word “hornbeam,” originally given to the European Hornbeam (*Carpinus betulas*), is from the words “horn” (for toughness) and “beam” (for tree) and refers to the very hard tough wood. The small size of this species limits uses to tool handles and wooden articles. The name beech has been misapplied to this member of the birch family, because of the similar bark. Deer browse the twigs and foliage, and grouse, pheasants, and quail eat the nutlets.





## 11. Chestnut Oak (*Quercus montana*)

Description: Large tree with broad, open, irregular crown of *chestnut-like foliage*.

- Height: 60 – 80' (18 – 24 m).
- Diameter: 2 – 3' (0.6 – 0.9 m)
- Leaves: 4 – 8" (10 – 20 cm) long, 2 – 4" (5 – 10 cm) wide. *Elliptical* or obovate, broadest beyond middle, short-pointed at tip; edges *wavy* with 10 – 16 *rounded teeth* on each side; gradually narrowed to base. Shiny green above, dull gray-green and sparsely hairy beneath; turning yellow in fall.
- Bark: gray; becoming thick and deeply furrowed into broad or narrow ridges.
- Acorns:  $\frac{3}{4}$  - 1  $\frac{1}{4}$ " (2 – 3 cm) long; *egg-shaped*,  $\frac{1}{3}$  or more enclosed by *deep, thin cup* narrowed at base, composed of short, *warty*, hairy *scales not overlapping*; becoming brown; short-stalked; maturing first year.

Habitat: Sandy, gravelly, and rocky dry upland soils, but reaches greatest size on well-drained lowland sites; often in pure stands on dry rocky ridges.

Range: Extreme S. Ontario to SW. Maine, south to Georgia, west to NE. Mississippi, and north to SE. Michigan; at 1500 – 5000' (457 – 1524 m).

Because of its high tannin content, the bark formerly served for tanning leather. The wood is marketed as White Oak. As a shade tree, it is adapted to dry rocky soil.



## **12. Winged Elm (*Ulmus alata*)**

Description: Tree with short trunk and open rounded crown.

- Height: 40 – 80' (12 – 24 m).
- Diameter: 1 ½' (0.5 m).
- Leaves: in 2 rows; 1 ¼ - 2 ½" (3 – 6 cm) long. Elliptical; often slightly curved with sides unequal; doubly saw-toothed; with yellow midvein and many straight side veins; thick and firm. *Dark green and hairless above, with soft hairs beneath; turning yellow in autumn.*
- Bark: light brown; thin, irregularly furrowed.
- Twigs: brownish, slender, often with 2 broad corky wings.
- Flowers: 1/8" (3 mm) wide; greenish; clustered along twigs in early spring.
- Fruit: 3/8" (10 mm) long; *elliptical reddish flat 1-seeded keys (samaras); hairy, with narrow wing having 2 curved point at tip; maturing in early spring.*

Habitat: Dry upland including abandoned fields, also in moist valleys; in hardwood forests.

Range: S. Virginia, south to central Florida, west to central Texas, and north to ventral Missouri; to 2000' (610 m).

In the 18<sup>th</sup> and 19<sup>th</sup> centuries, the fibrous inner bark was made into rope for fastening covers of cotton bales. The common and Latin names refer to the distinctive broad, corky wings present on some twigs; "Wahoo" was the Creek Indian name.





### 13. Mimosa (*Albizia julibrissin*)

Description: Small ornamental with short trunk or several trunks and very *broad, flattened crown* of spreading branches and with showy pink flower clusters.

- Height: 20' (6 m).
- Diameter: 8" (20 cm).
- Leaves: *bipinnately compound*; 6 – 15" (15 – 38 cm) long; *fernlike*; with 5 – 12 *pairs* of side axes covered with fine hairs. Each axis has 15 – 30 *pairs* of oblong pale green leaflets,  $\frac{3}{8}$  -  $\frac{5}{8}$ " (10 – 15 mm) long.
- Bark: blackish or gray; nearly smooth.
- Twigs: brown or gray; often angles.
- Flowers: more than 1" (2.5 cm) long; with long *threadlike pink stamens* whitish toward base; crowded in long-stalked *ball-like clusters* 1 ½ - 2" (4 – 5 cm) wide; grouped at ends of twigs; throughout summer.
- Fruit: 5 – 8" (13 – 20 cm) long; flat pointed *oblong pod*; yellow-brown; maturing in summer, remaining closed; several beanlike flattened shiny brown seeds.

Habitat: Open area including wasteland and dry gravelly soils.

Range: Native from Iran to China; naturalized from Maryland to S. Florida, west to E. Texas, north to Indiana; to 2000' (610 m)

The hardiest tree of its genus, Mimosa has an unusually long flowering period. Its name comes from its flowers which are similar to those of the related herbaceous sensitive-plants (genus *Mimosa*). Mimosa leaflets fold up at night; those sensitive-plants fold up when touched.



## 14. Sourwood (*Oxydendrum arboreum*)

Description: Tree with conical or rounded crown of spreading branches, clusters of flowers recalling Lily-of-the-valley, and glossy foliage that turns red in autumn.

- Height: 50' (15 m).
- Diameter: 1' (0.3 m).
- Leaves: 4 – 7" (10 – 18 cm) long, 1 ½ - 2 ½" (4 – 6 cm) wide. *Elliptical* or lance-shaped; *finely saw-toothed*; with *sour taste*. *Shiny yellow-green* above, paler and slightly hairy on veins beneath; turning red in autumn.
- Bark: brown or gray; thick; fissured into narrow, scaly ridges.
- Twigs: light yellow-green, slender, hairless.
- Flowers: buds and young flowers hanging down short-stalked on 1 side of slender axes, with urn-shaped white corolla, ¼" (6 mm) long, slightly 5-lobed; in terminal drooping clusters 4 – 10" (10 – 25 cm) long; in midsummer.
- Fruit: ¾" (10 mm) long; a *narrowly egg-shaped capsule*; gray and covered with fine hairs; *upright on curved stalks* along drooping axes; 5-celled, splitting along 5 lines; many-seeded; maturing in autumn, remaining attached into winter.

Habitat: Moist soils in valleys and uplands with oaks and pines.

Range: SW. Pennsylvania and SE. Maryland, south to NW. Florida, west to Louisiana, north to S. Indiana; 5000' (1524 m) or slightly higher in southern Appalachians.

Sourwood is an attractive ornamental throughout the year. Both the genus name, meaning "sour tree," and the common name refer to the acid taste of the foliage although Sourwood honey is esteemed. Abundant in Great Smokey Mountains National Park.





## 15. American Beech (*Fagus grandifolia*)

Description: Large tree with rounded crown of many long, spreading and horizontal branches, producing edible beechnuts.

- Height: 60 – 80' (18 – 24 m).
- Diameter: 1 – 2 ½' (0.3 – 0.8 m).
- Leaves: *spreading in 2 rows*; 2 ½ - 5" (6 – 13 cm) long, 1 – 3" (2.5 – 7.5 cm) wide. *Elliptical* or ovate, long-pointed at tip; with many *straight parallel* slightly sunken *side veins* and *coarsely saw-toothed* edges; short-stalked. *Dull dark blue-green* above, light green beneath becoming hairless or nearly so; turning yellow and brown in fall.
- Bark: light gray; smooth, thin.
- Twigs: slender, ending in long narrow scaly buds, with short side twigs or spurs.
- Flowers: with new leaves in spring. Male flowers small, yellowish with many stamens, crowded in ball ¾ - 1" (2 – 2.5 cm) in diameter, hanging on slender hairy stalk to 2" (5 cm). Female flowers about ¼" (6 mm) long, bordered by narrow hairy reddish scales, 2 at end of short stalk.
- Fruit: ½ - ¾" (12 – 19 mm) long; short-stalked light brown *prickly burs*, maturing in autumn and splitting into 4 parts. Usually 2 *nuts*, about ⅝" (15 mm) long, 3-angled, shiny brown, known as *beechnuts*.

Habitat: Moist rich soils of uplands and well-drained lowlands; often in pure stands.

Range: S. Ontario, east to Cape Breton Island, south to N. Florida, west to E. Texas and north to N. Michigan; a variety in mountains of NE. Mexico; to 3000' (914 m) in north and to 6000' (1829 m) in southern Appalachians.

American Beech was recognized by the colonists, who already knew the famous, closely related European Beech. American Beech is a handsome shade tree and bears similar edible beechnuts, which are consumed in quantities by wildlife, especially squirrels, raccoons, bears, other mammals, and game birds. Unlike most trees, beeches retain smooth bark in age. The trunks are favorites for carving and preserve initials and dates indefinitely.



## 16. Post Oak (*Quercus stellate*)

Description: Tree with dense, rounded crown and distinctive *leaves suggesting a Maltese cross*; sometimes a shrub.

- Height: 30 – 70' (9 – 21 m).
- Diameter: 1 – 2' (0.3 – 0.6 m).
- Leaves: 3 ¼ - 6" (8 – 15 cm) long, 2 – 4" (5 – 10 cm) wide. *Obovate*; with 5 – 7 deep broad rounded lobes, 2 middle lobes largest; with short-pointed base and rounded tip; slightly thickened. Shiny dark green and slightly rough with scattered hairs above, *gray-green* with tiny star-shaped hairs beneath; turning brown in fall.
- Bark: light gray; fissured into scaly ridges.
- Acorns: ½ - 1" (1.2 – 2.5 cm) long; *elliptical*, ⅓ – ½ enclosed by *deep cup*; green becoming brown; usually stalkless or short-stalked; maturing first year.

Habitat: Sandy, gravelly, and rocky ridges, also moist loamy soils of flood plains along streams; sometimes in pure stands.

Range: SE. Massachusetts south to central Florida, west to NW Texas, and north to SE Iowa; to 3000' (914 m).

The wood is marketed as White Oak and used for railroad crossties, posts, and construction timbers. Of large size in the lower Mississippi Valley where it is known as "Delta Post Oak." Post Oak and Blackjack Oak form the Cross Timbers in Texas and Oklahoma, the forest border of small trees and transition zone to prairie grassland.





## 17. Red Maple (*Acer rubrum*)

Description: Large tree with narrow or rounded, compact crown and *red flowers, fruit, leafstalks, and autumn foliage*.

- Height: 60 – 90' (18 – 27 m).
- Diameter: 2 ½' (0.8 m).
- Leaves: opposite; 2 ½ - 4" (6 – 10 cm) long and nearly as wide. Broadly ovate, with 3 *shallow short-pointed lobes* (sometimes with 2 smaller lobes near base); irregularly and wavy *saw-toothed*, with 5 main veins from base; long red or green leafstalk. Dull green above, *whitish* and hairy *beneath*; turning red, orange, and yellow in autumn.
- Bark: gray; thin, smooth, becoming fissured into long thin scaly ridges.
- Twigs: reddish, slender, hairless.
- Flowers: 1/8" (3 mm) long; *reddish*; crowded in nearly stalkless clusters along twigs; male and female in separate clusters; in *late winter* or very early spring before leaves.
- Fruit: ¾ - 1" (2 – 2.5 cm) long including long wing; *paired forking keys*; *red turning reddish-brown*; 1-seeded; maturing in spring.

Habitat: Wet or moist soils of stream banks, valleys, swamps, and uplands and sometimes on dry ridges; in mixed hardwood forests.

Range: Extreme SE. Manitoba east to E. Newfoundland, south to S. Florida, west to E. Texas; to 6000' (1829 m).

Red Maple is a handsome shade tree, displaying red in different seasons. Pioneers made ink and cinnamon-brown and black dyes from a bark extract. It has the greatest north-south distribution of all tree species along the East Coast.



## 18. Pecan (*Carya illinoensis*)

Description: Large wild and planted tree with tall trunk, broad rounded crown of massive spreading branches, and familiar pecan nuts.

- Height: 100' (30 m).
- Diameter: 3' (0.9 m).
- Leaves: pinnately compound; 12 – 20" (30 – 51 cm) long; 11 – 17 *slightly sickle-shaped leaflets*, 2 – 7" (5 – 18 cm) long; long-pointed at tips; finely saw-toothed; short-stalked; hairless or slightly hairy. Yellow-green above, paler beneath; turning yellow in autumn.
- Bark: light brown or gray; deeply and irregularly furrowed into narrow forked scaly ridges.
- Flowers: tiny; greenish; in early spring before leaves. Male, with 5 – 6 stamens, many in slender drooping *catkins*, 3 hanging from 1 stalk. Female 2 -10 flowers at tip of the same twig.
- Fruit: 1 ¼ - 2" (3 – 5 cm) long; *oblong*; short-pointed at tip, rounded at base; with thin husk becoming dark brown, splitting to base along 4 ridges; 3 – 10 in cluster. Pecan nut light brown with darker markings, thin-shelled, with edible seed.

Habitat: Moist well-drained loamy soils of river flood plains and valleys; in mixed hardwood forests.

Range: E. Iowa east to Indiana, south to Louisiana, west to S. Texas; to 1600' (488 m); also mount of Mexico.

Pecan is on of the most valuable cultivated plants originating in North America. Improved varieties with large, thin-shelled nuts are grown in plantations or orchards in the Southeast; pecans are also harvested locally from wild trees. The wood is used for furniture, flooring, veneer, and charcoal for smoking meats. The word *pecan* is of Algonquian Indian origin. The Latin species name is from an old term, "Illinois nuts," and refers to the region where traders found wild trees and nuts. Indians may have extended the range by planting. This tree of the Mississippi valley was unknown to the British colonists on the Atlantic coast. Thomas Jefferson planted seeds at Monticello and gave some to George Washington; now these Pecans are the oldest trees in Mount Vernon.





## 19. Tree-of-heaven (*Ailanthus altissima*)

Description: A hardy, introduced tree with a spreading, rounded, open crown of stout branches and coarse foliage; *male flowers* and *crushed foliage* have *disagreeable odor*.

- Height: 50 – 80' (15 – 24 m).
- Diameter: 1 – 2' (0.3 – 0.6 m).
- Leaves: pinnately compound; 12 – 24" (30 – 61 cm) long. 13 -25 leaflets (sometimes more) 3 – 5" (7.5 – 13 cm) long, 1 – 2" (2.5 – 5 cm) wide; paired (except at end); broadly lance-shaped; with 2 – 5 teeth near broad 1-sided base and gland-dot beneath each tooth; covered with fine hairs when young. Green above, paler beneath.
- Bark: light brown; smooth, becoming rough and fissured.
- Twigs: light brown, *very stout*; covered with fine hairs when young; with *brown* pith.
- Flowers: ¼" (6 mm) long; with 5 *yellowish-green petals*; in terminal branched clusters 6 – 10" (15 – 25 cm) long; male and female usually on separate trees; in late spring and early summer.
- Fruit: 1 ½" (4 cm) long; showy, reddish-green or reddish-brown, narrow, flat, winged, 1-seeded; 1 – 6 from a flower; maturing in late summer and autumn.

Habitat: Widespread in waste places, spreading rapidly by suckers.

Range: Native to China but widely naturalized across temperate North America; from near sea level to high mountains.

Widely planted as an ornamental and shade tree and in shelterbelts, for the rapid growth and coarse foliage reminiscent of tropical trees. However, is it no longer recommended for good sites where other trees will grow. Male flowers have an objectionable odor, and some people are allergic to their pollen which may produce symptoms of hay fever. The roots, which are classed as poisonous, get into drains, springs, and wells. The weak branches are easily broken by storms. Tolerant of crowded dusty cities and smoky factory districts, often growing out of cracks in concrete.



## 20. Honey locust (*Gleditsia triacanthos*)

Description: Large, spiny tree with open, flattened crown of spreading branches.

- Height: 80' (24 m).
- Diameter: 2 ½" (0.8).
- Leaves: *pinnately and bipinnately compound*; 4 – 8" (10 – 20 cm) long; the axis often with 3 – 6 pairs of side axes or forks; in late spring. *Many oblong leaflets*  $\frac{3}{8}$  – 1  $\frac{1}{4}$ " (1 – 3 cm) long; paired and stalkless; with *finely wavy edges*. Shiny dark green above, dull yellow-green and nearly hairless beneath; turning yellow in autumn.
- Bark: gray-brown or black; fissured in long narrow scaly ridges; with *stout brown spines, usually branched*, sometimes 8" (20 cm) long, with 3 to many points.
- Twigs: shiny brown, stout, zigzag, with long spines.
- Flowers:  $\frac{3}{8}$ " (10 mm) wide; *bell-shaped*, with 5 petals; *greenish-yellow*, covered with fine hairs; in short narrow clusters at leaf bases in late spring; usually male and female on separate twigs or trees.
- Fruit: 6 – 16" (15 – 41 cm) long, 1  $\frac{1}{4}$ " (3 cm) wide; *flat pod*; dark brown, hairy, *slightly curved and twisted*, thick-walled; shedding unopened in late autumn; many beanlike flattened dark brown seeds in *sweetish edible pulp*.

Habitat: Moist soils of river flood plains in mixed forests; sometimes on dry upland limestone hills; also in waste places.

Range: Extreme S. Ontario to central Pennsylvania, south to NW. Florida, west to SE. Texas, and north to SE. South Dakota; naturalized eastward; to 2000' (610 m).

Livestock and wildlife consume the honeylike, sweet pulp of the pods. Honeylocust is easily recognized by the large, branched spines on the trunk; thornless forms, however, are common in cultivation and are sometimes found wild. The spines have been used as pins. This hardy species is popular for shade, hedges, and attracted wildlife.





## 21. Virginia Pine (*Pinus virginiana*)

Description: Short-needled tree with open, broad, irregular crown of long spreading branches; often a shrub.

- Height: 30 – 60' (9 – 18 m).
- Diameter: 1 – 1 ½' (0.3 – 0.5 m).
- Needles: *evergreen*; 1 ½ - 3" (4 – 7.5 cm) long; 2 *in bundle*; stout, slightly flattened and twisted; dull green.
- Bark: brownish-gray, thin, with narrow scaly ridges, becoming shaggy; on small trunks, smoothish, peeling off in flakes.
- Cones: 1 ½ - 2 ¾" (4 – 7 cm) long; *narrow egg-shaped*, shiny *reddish-brown*; almost stalkless; opening at maturity but *remaining attached*; cone-scales slightly raised and keeled, with *long slender prickle*.

Habitat: Clay, loam, and sandy loam on well-drained sites. Forms pure stands, especially on old fields or abandoned farmland, even in poor or severely eroded soil. Also in mixed forest types.

Range: SE. New York (Long Island) south to NE. Mississippi, and north to S. Indiana; at 100 – 2500' (30 – 762 m).

Used principally for pulpwood and lumber, it is hardier than most pines and suitable for planting in poor dry sites. Common in old fields as a pioneer after grasses on hills of the Piedmont, growing rapidly and forming thickets. Later this pine is replaced by taller, more valuable hardwoods.





## **22.Pignut Hickory (*Carya glabra*)**

Description: Tree with irregular, spreading crown and thick-shelled nuts.

- Height: 60 – 80' (18 – 24 m).
- Diameter: 1 -2' (0.3 – 0.6 m).
- Leaves: pinnately compound; 6 – 10" (15 – 25 cm) long, with slender hairless axis. *Usually 5 leaflets*, 3 – 6" (7.5 – 15 cm) long, largest toward tip; *lance-shaped*; nearly stalkless; finely saw-toothed; *hairless* or hairy on veins beneath. Light green, turning yellow in autumn.
- Bark: light gray; smooth or becoming furrowed with forking ridges.
- Twigs: brown; slender, hairless.
- Flowers: tiny; greenish; in early spring before leaves. Male, with 4 stamens, many in slender drooping *catkins*, *3 hanging from 1 stalk*. Female, 2 – 10 flowers at tip of same twig.
- Fruit: 1 – 2" (2.5 – 5 cm) long; *slightly pear-shaped* or rounded; *husk thin*, becoming dark brown and *opening late* and splitting usually to middle. Hickory nuts usually not angled, *thick-shelled*, with small sweet or bitter seed.

Habitat: Dry and moist uplands in hardwood forests with oaks and other hickories.

Range: S. Ontario east to S. New England, south to central Florida, west to extreme E. Texas, and north to Illinois; to 4800' (1463 m) in southern Appalachians.



## **23. American Sycamore (*Platanus occidentalis*)**

**Description:** One of the largest eastern hardwoods, with an enlarged base, massive, straight trunk, and large, spreading, often crooked branches form a broad open crown.

- **Height:** 60 – 100' (18 – 30 m).
- **Diameter:** 2 – 4' (0.6 – 1.2 m), sometimes much larger.
- **Leaves:** 4 – 8" (10 – 20 cm) long and wide (larger on shoots). *Broadly ovate*, with 3 or 5 *shallow broad short-pointed lobes*; wavy edges with scattered large teeth; 5 or 3 main veins from notched base. Bright green above, paler beneath and becoming hairless except on veins; turning brown in autumn. Leafstalk long, stout, covering side bud at enlarged base.
- **Bark:** *smooth, whitish and mottled; peeling off* in large thin flakes, exposing patches of brown, green, and gray; base of large trunks dark brown, deeply furrowed into broad scaly ridges.
- **Twigs:** greenish, slender, zigzag, with ring scars at nodes.
- **Flowers:** tiny, *greenish*; in 1 – 2 *ball-like drooping clusters*; male and female clusters on separate twigs; in spring.
- **Fruit:** 1" (2.5 cm) in diameter; usually 1 *brown ball* hanging on long stalk, composed of many narrow *nutlets* with *hair tufts*; maturing in autumn, separating in winter.

**Habitat:** Wet soils of stream banks, flood plains, and of lakes and swamps; dominant in mixed forests.

**Range:** SW. Main, south to NW. Florida, west to S. central Texas, north to E. Nebraska; also NE. Mexico; to 3200' (975 m).

Sycamore pioneers on exposed upland sites such as old fields and strip mines. The wood is used for furniture parts, millwork, flooring, and specialty products such as butcher blocks, as well as pulpwood, particleboard, and fiberboard. A shade tree, Sycamore grows to a larger trunk diameter than any other native hardwood. The present champion's trunk is about 11' (3.4 m) in diameter; an earlier giant's diameter was 15' (4.6 m). The hollow trunks of old, giant trees were homes for chimney swifts in earlier times.





## **24. Black Walnut (*Juglans nigra*)**

**Description:** Large walnut tree with open, rounded crown of dark green, *aromatic foliage*.

- **Height:** 70 – 90' (21 – 27 m).
- **Diameter:** 2 – 4' (0.6 – 1.2 m).
- **Leaves:** pinnately compound; 12 – 24" (30 – 61 cm) long. 9 – 21 leaflets 2 ½ - 5" (6 – 13 cm) long; *broadly lance-shaped*; finely saw-toothed; long-pointed; stalkless; nearly hairless above, covered with soft hairs beneath. Green or dark green, turning yellow in autumn.
- **Bark:** dark brown; deeply furrowed into scaly ridges.
- **Twigs:** brown, stout, with brown *chambered pith*.
- **Flowers:** small; greenish; in early spring. Male, with 20 – 30 stamens, many in catkins. Female, with 2-lobed style, 2 – 5 at tip of same twig.
- **Fruit:** single or paired, 1 ½ - 2 ½" (4 – 6 cm) in diameter; thick green or brown husk; irregularly ridged, thick-shelled inner layer covering sweet edible seed.

**Habitat:** Moist well drained soils, especially along streams, scattered in mixed forests.

**Range:** Eastern half of United States except southern border; New York south to NW. Florida, west to central Texas, north to SE. South Dakota; local in S. New England and S. Ontario; to 4000' (1219 m).

One of the scarcest and most coveted native hardwoods, Black Walnut is used especially for furniture, gunstocks, and veneer. Individual trees fetch attractive prices and a few prized trees have even been stolen. Since colonial days and before, Black Walnut has provided edible nuts and a blackish dye made from husks. Tomatoes and apples do not survive near mature trees. The delicious nuts must be gathered early, before squirrels and other wildlife can consume them.





## 25. Sugar Maple (*Acer saccharum*)

Description: Large tree with rounded, dense crown and striking, multicolored foliage in autumn.

- Height: 70 – 100' (21 – 30 m).
- Diameter: 2 – 3' (0.6 – 0.9 m).
- Leaves: opposite; 3 ½ - 5 ½" (9 – 14 cm) long and wide; palmately lobed with 5 *deep long-pointed lobes*; few *narrow long-pointed teeth*; 5 main veins from base; leafstalks long and often hairy. Dull dark green above, paler and often hairy on veins beneath; turning deep red, orange, and yellow in autumn.
- Bark: light gray; becoming rough and deeply furrowed into narrow scaly ridges.
- Twigs: greenish to brown or gray; slender.
- Flowers:  $\frac{3}{16}$ " (5 mm) long; with bell-shaped 5-lobed *yellowish-green* calyx; male and female in drooping clusters on long slender hairy stalks; with new leaves in early spring.
- Fruit: 1 – 1 ¼" (2.5 – 3 cm) long including long wing; *paired forking keys*; brown, 1-seeded; maturing in autumn

Habitat: Moist soils of uplands and valleys, sometimes in pure stands.

Range: Extreme SE. Manitoba east to Nova Scotia, south to North Carolina, and west to E. Kansas; local in NW. South Carolina and N. Georgia; to 2500' (762 m) in north and 3000 – 5500' (914 – 1676 m) in southern Appalachians.

Maples, particularly Sugar Maple, are among the leading furniture woods. This species is used also for flooring, boxes and crates, and veneer. Some trees develop special grain patterns, including birdseye maple with dots suggesting the eyes of birds. And curly and fiddleback maple with wavy annual rings. Such variations in grain are in great demand. The boiled concentrated sap is the commercial source of maple syrup, a use that colonists learned from the Indians. Each tree yields between 5 and 60 gallons of sap per year; about 32 gallons of sap make 1 gallon of syrup or 4 ½ pounds of sugar.



## **26. Black locust (*Robinia pseudoacacia*)**

**Description:** Medium-sized, spiny tree with a forking, often crooked and angled trunk and irregular, open crown of upright branches.

- **Height:** 40 – 80' (12 – 24 m).
- **Diameter:** 1 – 2' (0.3 – 0.6 m).
- **Leaves:** pinnately compound; 6 – 12" (15 – 30 cm long. 7 – 19 leaflets 1 – 1 ¾" (2.5 – 4.5 cm) long, ½ - ¾" (12 – 19 mm) wide; paired (except at end); *elliptical*; with *tiny bristle tip*; without teeth; hairy when young; drooping and folding at night. Dark blue-green above, pale and usually hairless beneath.
- **Bark:** light gray; thick, deeply furrowed into long rough forking ridges.
- **Twigs:** dark brown, with stout *paired spines* ¼ - ½" (6 – 12 cm) long at nodes.
- **Flowers:** ¾" (19 mm) long; *pea-shaped*; with 5 unequal *white petals*, largest yellow near base; very fragrant; in showy drooping clusters 4 – 8" (10 – 20 cm) long at base of leaves; in late spring.
- **Fruit:** 2 – 4" (5 – 10 cm) long; *narrowly oblong flat pod*; dark brown; maturing in autumn, remaining attached into winter, splitting open; 3 -14 dark brown flattened beanlike seeds.

**Habitat:** Moist to dry sandy and rocky soils, especially in old fields and other open areas, and in woodlands.

**Range:** Central Pennsylvania and S. Ohio south to NE. Alabama, and from S. Missouri to E. Oklahoma; naturalized in S. Canada; from 500' (152 m) to above 5000' (1524 m) in southern Appalachians.

Black Locust is widely planted for ornamental and shelterbelts, and for erosion control particularly on lands strip-mined for coal. Although it grows rapidly and spreads like a weed, it is short lived. Virginia Indians made bows of the wood and apparently planted the trees eastward. British colonists at Jamestown discovered the species in 1607 and named it for its resemblance to the Carob Tree or Old-World Locust (*Ceratonia siliqua*). Part of this durable timber served as cornerposts for the colonists' first homes.



## **27. Yellow-poplar (*Liriodendron tulipifera*)**

**Description:** One of the tallest and most beautiful eastern hardwoods, with a long, straight trunk, a narrow crown that spreads with age, and large showy flowers resembling tulips or lilies.

- **Height:** 80 – 120' (24 – 37 m).
- **Diameter:** 2 – 3' (0.6 – 0.9), sometimes much bigger.
- **Leaves:** 3 – 6" (7.5 – 15 cm) long and wide. Blades of unusual shape, with *broad tip* and base nearly straight *like a square*, and with *4 or sometimes 6 short-pointed paired lobes*; hairless; long-stalked. Shiny dark green above, paler beneath; turning yellow in autumn.
- **Bark:** dark gray; becoming thick and deeply furrowed.
- **Twigs:** brown, stout, hairless, with *ring scars at nodes*.
- **Flowers:** 1 ½ - 2" (4 – 5 cm) long and wide; *cup-shaped*, with 6 rounded green petals (orange at base); solitary and upright at end of leafy twig; in spring.
- **Fruit:** 2 ½ - 3" (6 – 7.5 cm) long; *conelike*; light brown; composed of many overlapping 1- or 2-seeded nutlets 1 – 1 ½" (2.5 – 4 cm) long (including *narrow wing*); shedding from upright axis in autumn; the axis persistent in winter.

**Habitat:** Moist well-drained soils, especially valleys and slopes; often in pure stands.

**Range:** Extreme S. Ontario east to Vermont and Rhode Island, south to N. Florida, west to Louisiana, and north to S. Michigan; to 1000' (305 m) in north and to 4500' (1372 m) in southern Appalachians.

Introduced into Europe from Virginia by the earliest colonists and grown also on the Pacific Coast. Very tall trees with massive trunks existed in the primeval forests but were cut for the valuable soft wood. Pioneers hollowed out a single log to make a long, lightweight canoe. One of chief commercial hardwoods, Yellow-poplar is used for furniture, as well as for crates, toys, musical instruments, and pulpwood.





## 28. Hackberry (*Celtis occidentalis*)

Description: Tree with rounded crown of spreading or slightly drooping branches, often deformed as bushy growths called witches'-brooms.

- Height: 50 – 90' (15 – 27 m).
- Diameter: 1 ½ - 3' (0.5 – 0.9 m).
- Leaves: in 2 rows; 2 – 5" (5 – 13 cm) long, 1 ½ - 2 ½" (4 – 6 cm) wide, *Ovate, long-pointed*; usually *sharply toothed* except toward *unequal-sided, rounded base*; 3 main veins. *Shiny green* and smooth (sometimes rough) above, paler and often hairy on veins beneath; turning yellow in autumn.
- Bark: gray or light brown; smooth with *corky warts* or ridges, becoming scaly.
- Twigs: light brown, slender, mostly hairy, slightly zigzag.
- Flowers: flowers: 1/8" (3 mm) wide; greenish; male and female at base of young leaves in early spring.
- Fruit: ¼ - 3/8" (6 – 10 mm) in diameter; orange-red to dark *purple* 1-seeded drupes; dry and sweet; slender-stalked at leaf bases; maturing in autumn.

Habitat: Mainly in river valleys, also on upland slopes and bluffs in mixed hardwood forests.

Range: Extreme S. Ontario east to New England, south to N. Georgia, west to NW. Oklahoma, north to North Dakota; local in S. Quebec and S. Manitoba; to 5000' (1524 m).

Used for furniture, athletic goods, boxes and crates, and plywood. The common name apparently was derived from "hagberry," meaning "marsh berry," a name used in Scotland for a cherry. Many birds, including quail, pheasants, woodpeckers, and cedar waxwings, consume the sweetish fruits. Branches of this and other hackberries may become deformed bushy growths called witches'-brooms produced by mites and fungi. The leaves often bear rounded galls caused by tiny jumping plant lice.



## **29. Sassafras (*Sassafras albidum*)**

Description: Aromatic tree or thicket-forming shrub with variously shaped leaves and narrow, spreading crown of short, stout branches.

Height: 30 – 60' (9 – 18 m).

Diameter: 1 ½' (0.5 m), sometimes larger.

Leaves: 3 – 5" (7.5 – 13 cm) long, 1 ½ - 4" (4 – 10 cm) wide. *Elliptical, often with 2 mitten-shaped lobed or 3 broad and blunt lobes*; not toothed; base short-pointed; long slender leafstalks. Shiny green above, paler and often hairy beneath; turning yellow, orange, or red in autumn.

Bark: gray-brown; becoming thick and deeply furrowed.

Twigs: *greenish*, slender, sometimes hairy.

Flowers: 3/8" (10 mm) long; *yellow-green*; several clustered at end of leafless twigs in early spring; male and female usually on separate trees.

Fruit: 3/8" (10 mm) long; *elliptical shiny bluish-black berries*; each in *red cup* on long *red stalk*, containing 1 shiny brown seed; maturing in autumn.

Habitat: Moist, particularly sandy, soils of uplands and valleys, often in old fields, clearings, and forest openings.

Range: Extreme S. Ontario east to SW. Maine, south to central Florida, west to E. Texas, and north to central Michigan; to 5000' (1524 m) in south Appalachians.

The roots and root bark supply oil of sassafras (used to perfume soap) and sassafras tea and have been used to flavor root beer. Explorers and colonists thought the aromatic root bark was a panacea, or cure-all, for diseases and shipped quantities to Europe. The greenish twigs and leafstalks have a pleasant, spicy, slightly gummy taste. Sassafras apparently is the American Indian name used by the Spanish and French settlers in Florida in the middle of the 16<sup>th</sup> century. This is the northernmost New World representative of an important family of tropical timbers.



### **30.Shortleaf Pine (*Pinus echinata*)**

Description: The most widely distributed of the southern yellow pines, a large tree with broad, open crown.

- Height: 70 – 100' (21 – 30 m).
- Diameter: 1 ½ - 3' (0.5 – 0.9 m).
- Needles: *evergreen*; 2 ¾ - 4 ½" (7 – 11 cm) long. *2 or sometimes 3 in bundle*; slender, flexible; dark blue-green.
- Bark: reddish-brown, with large irregular flat scaly plates.
- Cones: 1 ½ - 2 ½" (4 – 6 cm) long; conical or *narrowly egg-shaped, dull brown*; short-stalked opening at maturity but *remaining attached*; cone-scales thin, keeled, with *small prickle*.
- Habitat: From dry rocky mountain ridges to sandy loams and silt loams of flood plains, and in old fields; often in pure stands or with other pines and oaks.
- Range: Extreme SE. New York and New Jersey south to N. Florida, west to E. Texas, and north to S. Missouri; to 3300' (1006 m).

Shortleaf Pine is native to 21 southeast states. An important timber species, producing lumber for construction, millwork, and many other uses, as well as plywood and veneer for containers. This and other southern pines are the major native pulpwoods and leading woods in production of barrels. Seedlings and small trees will sprout after fire damage or injury.





### **31. Southern Red Oak (*Quercus falcata*)**

Description: Tree with rounded, open crown of large spreading branches, and twigs with rust-colored hairs.

- Height: 50 – 80' (15 – 24 m).
- Diameter: 1 – 2 ½' (0.3 – 0.8 m).
- Leaves: 4 – 8" (10 – 20 cm) long, 2 – 6" (5 – 15 cm) wide. *Elliptical; deeply divided* into long narrow end lobe and 1 – 3 shorter mostly curved lobes on each side, with 1 – 3 bristle-tipped teeth; sometimes slight *triangular* with *bell-shaped* base and 3 broad lobes. *Shiny green* above, with rust-colored or *gray soft hairs* beneath; turning brown in fall.
- Bark: dark gray; becoming furrowed into broad ridges and plates.
- Acorns: ½ - 5/8" (12 – 15 mm) long; *elliptical* or rounded; becoming brown; 1/3 or more enclosed by cup tapering to broad stalklike base; maturing second year.

Habitat: Dry, sandy loam and clay loam soils of uplands; in mixed forests.

Range: Long Island and New Jersey south to N. Florida, west to E. Texas, and north to S. Missouri; to 2500' (762 m).

Often called Spanish Oak, possibly because it commonly occurs in areas of the early Spanish colonies. It is unlike any oak native to Spain. The lumber is marketed as Red Oak. Cherrybark Oak is a variety with whitish hairs beneath, and smooth cherrylike bark with short ridges. It is found on well-drained lowland soils from southeastern Virginia to northwestern Florida and eastern Texas.



## 32. Sweetgum (*Liquidambar styraciflua*)

Description: Large, aromatic tree with straight trunk and conical crown that becomes round and spreading.

- Height: 60 – 100' (18 – 30 m).
- Diameter: 1 ½ - 3' (0.5 – 0.9 m).
- Leaves: 3 – 6" (7.5 – 15 cm) long and wide. *Star-shaped* or maplelike, with 5, *sometimes* 7, *long-pointed, finely saw-toothed lobes* and 5 main veins from notched base; with *resinous odor when crushed*; leafstalks slender, nearly as long as blades. Shiny dark green above, turning reddish in autumn.
- Bark: gray; deeply furrowed into narrow scaly ridges.
- Twigs: green to brown, stout, *often forming corky wings*.
- Flowers: tiny; in *greenish ball-like clusters* in spring; male in several clusters along a stalk; female in drooping cluster on same tree.
- Fruit: 1 – 1 ¼" (2.5 – 3 cm) in diameter; a long-stalked drooping brown *ball* composed of many individual fruits, each ending in *2 long curved prickly points* and each with 1 – 2 long-winged seeds; maturing in autumn and persistent into winter.

Habitat: Moist soils of valleys and lower slopes; in mixed woodlands. Often a pioneer after logging, clearing, and in old fields.

Range: Extreme SW. Connecticut south to central Florida, west to E. Texas, and north to S. Illinois; also a variety in E. Mexico; to 3000' (914 m) in southern Appalachians.

An important timber tree, Sweetgum is second in production only to oaks among hardwoods. It is a leading furniture wood, used for cabinetwork, veneer, plywood, pulpwood, barrels, and boxes. In pioneer days, a gum was obtained from the trunks by peeling the bark and scraping off the resinlike solid. This gum was used medicinally as well as for chewing gum. Commercial storax, a fragrant resin used in perfumes and medicines, is from the related Oriental Sweetgum (*Liquidambar arientalis*) of western Asia.



### **33. Eastern Redcedar (*Juniperus virginiana*)**

Description: Evergreen, aromatic tree with trunk often angled and buttressed at base and narrow, compact, columnar crown; sometimes becoming broad and irregular.

- Height: 40 – 60' (12 – 18 m).
- Diameter: 1 – 2' (0.3 – 0.6 m).
- Leaves: *evergreen; opposite in 4 rows* forming slender 4-angled twigs;  $\frac{1}{16}$ " (1.5 mm) long, to  $\frac{3}{8}$ " (10 mm) long on leaders. *Scalelike*, not toothed; *dark green*, with gland-dot.
- Bark: reddish-brown; thin, fibrous and shreddy.
- Cones:  $\frac{1}{4}$  -  $\frac{3}{8}$ " (6 – 10 mm) in diameter; *berrylike; dark blue* with a bloom; soft, *juicy*, sweetish, and resinous; 1 – 2 seeds. Pollen cones on separate trees.

Habitat: From dry uplands, especially limestone, to flood plains and swamps; also abandoned fields and fence rows; often in scattered pure stands.

Range: S. Ontario and widespread in eastern half of United States from Main south to N. Florida, west to Texas, and north to North Dakota.

The most widely distributed eastern conifer, native in 37 states, Eastern Redcedar is resistant to extremes of drought, heat, and cold. The aromatic wood is used for fenceposts, cedar chests, cabinetwork, and carvings. First observed at Roanoke Island, Virginia, in 1564, it was prized by the colonists for building furniture, rail fences, and log cabins. Cedar oil for medicine and perfumes is obtained from the wood and leaves. The heartwood was once almost exclusively the source of wood for pencils; Incense-cedar (*Libocedrus decurrens*) is now used instead. Grown for Christmas trees, shelterbelts, and in many cultivated varieties for ornament. The juicy "berries" are consumed by many kinds of wildlife including the cedar waxwing, named for this tree. Redcedar can be injurious to apple orchards because it is an alternate host for cedar-apple rust, a fungus disease.





## **34. Northern Red Oak (*Quercus rubra*)**

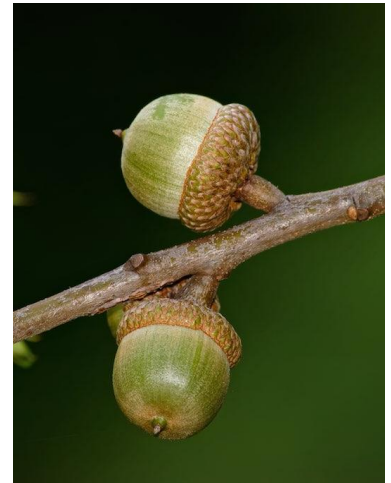
Description: Large tree with rounded crown of stout, spreading branches.

- Height: 60 – 90' (18 – 27 m).
- Diameter: 1 – 2 ½' (0.3 – 0.8 m).
- Leaves: 4 – 9" (10 – 23 cm) long, 3 – 6" (7.5 – 15 cm) wide. *Elliptical*; usually divided less than halfway to midvein into 7 – 11 *shallow wavy lobes* with a few irregular bristle-tipped teeth. Usually *dull green* above, dull light green beneath with tufts of hairs in angles along midvein; turning brown or dark red in fall.
- Bark: dark gray or blackish; rough, furrowed into scaly ridges; inner bark reddish.
- Acorns: 5/8 – 1 1/8" (1.5 – 2.8 cm) long; *egg-shaped*, less than 1/3 enclosed by *broad cup* of reddish-brown, blunt, tightly overlapping scales; maturing second year.

Habitat: Moist, loamy, sandy, rocky, and clay soils; often forming pure stands.

Range: W. Ontario to Cape Breton Island, south to Georgia, west to E. Oklahoma, and north to Minnesota; to 5500' (1676 m) in south.

The northernmost eastern oak, it is also the most important lumber species of red oak. Most are used for flooring, furniture, millwork, railroad cross-ties, mine timbers, fenceposts, pilings, and pulpwood. A popular handsome shade and street tree, with good form and dense foliage. One of the most rapid-growing oaks, it transplants easily, is hardy in city conditions, and endures cold.



### **35. Devil's Walkingstick (*Aralia spinosa*)**

Description: Spiny, aromatic, thicket-forming shrub or small tree with 1 (sometimes several) stout and usually unbranched trunk, very large compound leaves, and big clusters of tiny flowers; sometimes with a few spreading branches and a thick crown.

- Height: 30' (9 m).
- Diameter: 8" (20 cm)
- Leaves: *clustered* at ends of twigs; *bipinnately compound*; 15 – 30" (38 – 76 cm) long and nearly as wide; with prickly branched axis. Numerous leaflets 2 – 3 ½" (5 – 9 cm) long; *ovate* or broadly elliptical; *finely saw-toothed*; nearly hairless. Dark green above, paler and *often with prickles* on midvein beneath; turning light yellow in autumn.
- Bark: dark brown; thin, fissured, often with scatter stout spines.
- Twigs: light brown, green inside; *very stout*; with many straight slender sharp *prickles* and large pith.
- Flowers: less than 1/8" (3 mm) long and wide; with 5 *tiny white petals*; in upright clusters 8 – 16" (20 – 41 cm) long; with many hairy branches; in late summer.
- Fruit: 1/4" (6 mm) in diameter; *berrylike*; *black* skin; thin purplish juicy pulp; 3 – 5 seeds; maturing in autumn.

Habitat: Moist soils mostly near streams in understory of hardwood forests; often form dense groves from root sprouts.

Range: New Jersey and New York south to central Florida, west to E. Texas, and north to SE. Missouri; naturalized north to New England, S. Ontario, and Wisconsin; to 3500' (1067 m); sometimes to 5000' (1524 m) in southern Appalachians.

Occasionally planted in the Victorian era as a grotesque ornamental. The aromatic spicy roots and fruit were used by early settlers in home remedies, including a sure for toothaches.



## 36. Shagbark Hickory (*Carya ovata*)

Description: Large tree with tall trunk, narrow irregular crown, and distinctive *rough shaggy bark*.

- Height: 70 – 100' (21-30 m).
- Diameter: 2 ½' (0.8 m).
- Leaves: pinnately compound: 8 – 14" (20-26 cm) long. 5 (rarely 7) *elliptical or ovate leaflets*, 3-7" (7.5 – 18 cm) long; *hairy*; yellow-green above, paler (and hairy when young) beneath; turning golden-brown in autumn.
- Bark: light gray; separating into long narrow curved strips loosely attached at middle.
- Twigs: brown; stout; ending in large brown hairy buds.
- Flowers: tiny; greenish, in early spring before leaves. Male, with 4 stamens, many in slender drooping *catkins*, 3 *hanging from 1 stalk*. 2 – 5 female flowers at tip of same twig.
- Fruit: 1 ¼ - 2 ½" (3 – 6 cm) long; *nearly round*; flattened at tip; with *husk thick*, becoming dark brown or blackish and *splitting to base*. Hickory nut elliptical or rounded, slightly flattened and angled, light brown, with edible seed.

Habitat: Moist soils of valleys and upland slopes in mixed hardwood forests.

Range: Extreme S. Quebec and SW. Maine, south to Georgia, west to SE Texas, and north to SE. Minnesota; also NE. Mexico; to 2000' (610 m) in north and 3000' (914 m) in southern Appalachians.

Wild trees and improved cultivated varieties produce commercial hickory nuts. Carolina Hickory (var. *australis* (Ashe) Little), a variety found in southeastern mountains, has small lance-shaped leaflets and small nuts. The name "hickory" is from *pawcohiccora*, the American Indian word for the oily food removed from pounded kernels steeped in boiling water. This seet hickory milk was used in cooking corn cakes and hominy. Pioneers made a yellow dye from the inner bark. The nickname "Old Hickory" was given by his backwoods militia to General Andrew Jackson (afterwards our seventh President) because he was "tough as hickory."





### **37. Eastern Redbud (*Cercis canadensis*)**

Description: Tree with a short trunk, rounded crown of spreading branches, and pink flowers that cover the twigs in spring.

- Height: 40' (12 m).
- Diameter: 8" (20 cm).
- Leaves: 2 ½ - 4 ½" (6 – 11 cm) long and broad. *Heart-shaped, with broad short point; without teeth; with 5 – 9 main veins; long-stalked.* Dull green above, paler and sometimes hairy beneath; turning yellow in autumn.
- Bark: dark gray or brown; smooth, becoming furrowed into scaly plates.
- Twigs: brown, slender, angled.
- Flowers: ½" (12 mm) long; pea-shaped, with 5 *slightly unequal purplish-pink petals*, rarely white; 4 – 8 flowers in a cluster on slender stalks; in early spring before leaves.
- Fruit: 2 ½ - 3 ¼" (6 – 8 cm) long; *flat narrowly oblong pods*; pointed at ends; pink, turning blackish; splitting open on 1 edge; falling in late autumn or winter. Several beanlike flat elliptical dark brown seeds.

Habitat: Moist soils of valleys and slopes and in hardwood forest.

Range: New Jersey south to central Florida, west to S. Texas, and north to SE. Nebraska; also N. Mexico; to 2200' (671 m).

Very showy in early spring, when the leafless twigs are covered with masses of pink flowers, Eastern Redbud is often planted as an ornamental. The flowers can be eaten as a salad, or fried. According to a myth, Judas Iscariot hanged himself on the related Judas-tree (*Cercis siliquastrum*) of western Asia and southern Europe, after which the white flowers turned with shame or blood.



### **38. White Oak (*Quercus alba*)**

Description: The classic eastern oak, with wide-spreading branches and a rounded crown, the trunk irregularly divided into spreading, often horizontal stout branches.

- Height: 80 – 100' (24 – 30 m) or more.
- Diameter: 3 – 4' (0.9 – 1.2 m) or more.
- Leaves: 4 – 9" (10 – 23 cm) long, 2 – 4" (5 – 10 cm) wide. *Elliptical; 5- to 9-lobed; widest beyond middle and tapering to base; hairless.* Bright green above, whitish or gray-green beneath; turning red or brown in fall, often remaining attached in winter.
- Bark: light gray; shallowly fissured into long broad scaly plates or ridges, often loose.
- Acorns:  $\frac{3}{8}$  – 1  $\frac{1}{4}$ " (1 – 3 cm) long; egg-shaped; about  $\frac{1}{4}$  enclosed by *shallow cup*; becoming light gray; with warty, finely hairy scales; maturing first year.

Habitat: Moist well-drained uplands and lowlands, often in pure stands.

Range: S. Ontario and extreme S. Quebec east to Maine, south to N. Florida, west to E. Texas, and north to E. central Minnesota; to 5500' (1676 m), or above in southern Appalachians.

The most important lumber tree of the white oak group, its high-grade wood is useful for all purposes. Called "Stave Oak" because the wood is outstanding in making tight barrels for whiskey and other liquids. In colonial times the wood was important in shipbuilding.





### **39. Green Ash (*Fraxinus pennsylvanica*)**

Description: Tree with dense, rounded or irregular crown of shiny green foliage.

- Height: 60' (18 m).
- Diameter: 1 ½' (0.5 m).
- Leaves: opposite; pinnately compound; 6 – 10" (15 – 25 cm) long; 5 – 9 (usually 7) *leaflets* 2 – 5" (5 – 13 cm) long, 1 – 1 ½" (2.5 – 4 cm) wide; paired (except at end); *lance-shaped* or ovate; coarsely *saw-toothed* or almost without teeth; mostly hairless. *Shiny green above*, green or paler and slightly hairy beneath; turning yellow in autumn.
- Bark: gray; furrowed into scaly ridges, with reddish inner layer.
- Twigs: green, becoming gray and hairless; slender.
- Flowers: 1/8" (3 mm) long; greenish; without corolla; in small clusters of many flowers each; before leaves in early spring. Male and female flowers on separate trees.
- Fruit: 1 ¼ - 2 ¼" (3 – 6 cm) long; yellowish *key* with *narrow wing extending nearly to base of narrow body*; hanging in clusters; maturing in late summer and autumn.

Habitat: Moist alluvial soils along streams in floodplain forests.

Range: SE. Alberta east to Cape Breton Island; south to N. Florida, west to Texas; to 3000' (914 m) in southern Appalachians.

The most widespread native ash, this species extends westward into the plains and nearly to the Rocky Mountains. A northeastern variation with twigs, leafstalks, and underleaf surfaces all densely covered with hairs has been called Red Ash. One of the most successful hardwoods in the Great Plains shelterbelts, hardy, fast-growing Green Ash is also planted on spoil banks after strip mining, as well as for shade.





## 40. Boxelder (*Acer negundo*)

Description: Small to medium sized tree with a short trunk and a broad, rounded crown of light green foliage.

- Height: 30 – 60' (9 – 18 m).
- Diameter: 2 ½' (0.8 m).
- Leaves: opposite; *pinnately compound*; 6" (15 cm) long; with slender axis. 3 – 7 *leaflets* sometimes slightly lobed, 2 – 4" (5 – 10 cm) long, 1 – 1 ½" (2.5 – 4 cm) wide; paired and short-stalked (except at end); *ovate or elliptical, long-pointed* at tip, short-pointed at base; *coarsely saw-toothed*, sometimes lobed. *Light green* and mostly hairless above, paler and varying in hairiness beneath; turning yellow (or sometimes red) in autumn.
- Bark: light gray-brown; with many narrow ridges and fissures, becoming deeply furrowed.
- Twigs: *green*, often whitish or purplish; slender, ringed at nodes, mostly hairless.
- Flowers: 3/16" (5 mm) long; with very small *yellow-green* calyx of 5 lobes or sepals; several clustered on slender drooping stalks; male and female on separate trees; before leaves in spring.
- Fruit: 1 – 1 ½" (2.5 – 4 cm) long; *paired, slightly forking keys* with flat narrow body and *long curved wing*; *pale yellow*, 1-seeded; maturing in summer and remaining attached in winter.

Habitat: Wet or moist soils along stream banks and in valleys with various hardwoods; also naturalized in waste places and roadsides.

Range: S. Alberta east to extreme S. Ontario and New York, south to central Florida, and west to S. Texas; also scattered from New Mexico to California and naturalized in New England; to 8000' (2438 m) in the Southwest.

Boxelder is classed with maple having similar key fruits but is easily distinguishable by the pinnately compound leaves. Hardy and fast-growing, it is planted for shade and shelterbelts but is short lived and easily broken in storms. Common and widely distributed, it is spreading in the East as a weed tree. Plains Indians made sugar from the sap. The common name indicated the resemblance of the foliage to that of elders (*Sambucus*) and the whitish wood to that of Box (*Buxus sempervirens*).





Tree Identification  
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Phone Number: \_\_\_\_\_

Address: \_\_\_\_\_



## Tree Identification Answer Sheet

1. Black Cherry
2. Red Mulberry
3. American Elm
4. Flowering Dogwood
5. Loblolly Pine
6. Osage Orange
7. Smooth Sumac
8. Winged Sumac
9. Royal Paulownia
10. American Hornbeam
11. Chestnut Oak
12. Winged Elm
13. Mimosa
14. Sourwood
15. American Beech
16. Post Oak
17. Red Maple
18. Pecan
19. Tree-of-Heaven
20. Honeylocust
21. Virginia Pine
22. Pignut Hickory
23. American Sycamore
24. Black Walnut
25. Sugar Maple
26. Black Locust
27. Yellow Poplar
28. Hackberry
29. Sassafras
30. Shortleaf Pine
31. Southern Red Oak
32. Sweetgum
33. Eastern Redceder
34. Northern Red Oak
35. Devil's Walkingstick
36. Shagbark Hickory
37. Eastern Redbud
38. White Oak
39. Green Ash
40. Boxelder



Here are the locations of each tree on the Eureka Trail.

- #1 Black Cherry (left 0.2-0.3)
- #2 Red Mulberry (right 0.4-0.5)
- #3 American Elm (left 0.4-0.5)
- #4 Flowering Dogwood (right 0.4-0.5)
- #5 Loblolly Pine (right 0.5-0.6)
- #6 Osage Orange (right 0.5-0.6)
- #7 Smooth Sumac (right 0.9-1.0)
- #8 Winged Sumac (left 0.9-1.0)
- #9 Royal Paulownia (left 0.9-1.0)
- #10 American Hornbeam (right 1.1-1.2)
- #11 Chestnut Oak (right 1.1-1.2)
- #12 Winged Elm (left 1.3-1.4)
- #13 Mimosa (right 1.4-1.5)
- #14 Sourwood (right 1.6-1.7)
- #15 American Beech (right 1.7-1.8)
- #16 Post Oak (left 1.8)
- #17 Red Maple (right 1.8-1.9)
- #18 Pecan (right 1.9-2.0)
- #19 Tree-of-heaven (right 2.2-2.3)
- #20 Honey locust (right 2.2-2.3)
- #21 Virginia Pine (right 2.5-2.6)
- #22 Pignut Hickory (right 2.5-2.6)
- #23 American Sycamore (left 2.8)
- #24 Black Walnut (left 2.8)
- #25 Sugar Maple (right 3.0-3.1)
- #26 Black Locust (left 3.3-3.4)
- #27 Yellow Poplar (right 3.4-3.5)
- #28 Hackberry (left 3.5)
- #29 Sassafras (right 3.5-3.6)
- #30 Shortleaf Pine (left 3.6-3.7)
- #31 Southern Red Oak (right 3.6-3.7)
- #32 Sweetgum (left 3.6-3.7)
- #33 Eastern Redcedar (left 3.7-3.8)
- #34 Northern Red Oak (left 3.9-4.0)
- #35 Devil's Walkingstick (right 3.9-4.0)
- #36 Shagbark Hickory (left 4.0-4.1)
- #37 Eastern Redbud (left 4.0-4.1)
- #38 White Oak (left 4.0-4.1)
- #39 Green Ash (right 4.1-Hwy 39)
- #40 Boxelder (right 4.1-Hwy 39)